JASPER TAN

Rice University
Department of Electrical and Computer Engineering
6100 Main St., MS-366, Houston, TX 77005

(408) 821 – 5051
jaspertan1993@yahoo.com
https://tanjasper.github.io

RESEARCH INTERESTS

Computational imaging, signal processing, machine learning, privacy-preserving machine learning

EDUCATION

PhD in **Electrical and Computer Engineering**
Rice University, December 2022 (expected)
Advisors: Dr. Richard Baraniuk and Dr. Ashok Veeraraghavan

MS in **Electrical and Computer Engineering**
Rice University, August 2018
Advisors: Dr. Richard Baraniuk and Dr. Ashok Veeraraghavan
Thesis: "Face detection and verification with FlatCam lensless imaging system"

BS in **Electrical Engineering** and **Computer Science & Engineering**, *summa cum laude*
Santa Clara University, June 2015
GPA: 3.99/4.00

ACADEMIC POSITIONS

Research Assistant
Department of Electrical and Computer Engineering, Rice University, 2016–Present

Undergraduate Research Assistant
Frugal Innovations Lab, Santa Clara University, 2014—2015

- Developed a lab-on-chip device for the microfluidic detection of arsenic

Undergraduate Research Assistant
Center of Nanostructures, Santa Clara University, 2013—2014

- Assisted in writing of a review paper on nanocontacts

SELECTED HONORS AND RESEARCH AWARDS

Rice University:
Data to Knowledge Lab Graduate Fellow, 2020
Ken Kennedy Engineering Enhancement Fellowship, 2015–2019
Texas Instruments Graduate Fellowship, 2015–2016

Santa Clara University:
Student Life Award, 2015
School of Engineering Award for Research Excellence, 2015
Academic Achievement Award in Electrical Engineering, 2015
Outstanding Computer Engineering Senior Award, 2015
School of Engineering Senior Design Presentation Award, 2015
Upsilon Pi Epsilon, 2015
Alpha Sigma Nu, 2015
Carl H. Hayn Physics Prize, 2013
Tau Beta Pi, 2013

Others:
Merit Scholar, Ateneo de Manila University, 2011
Xavier Award, Xavier High School, 2007

INDUSTRY POSITIONS

PhD Machine Learning Software Engineering Intern
Facebook Music Video Ranking, Meta, Seattle, Washington, 2022

- Developed a machine learning-based music video recommendation system for the Facebook app

Computational Imaging Intern
Imaging Systems Group, Light Labs Inc., Redwood City, California, 2019

- Drove a research project on image super-resolution
- Developed an intuitive graphical user interface for compactly serializing multi-camera system parameters

Technical Intern
Corporate Application Engineers, Synopsys Inc., Sunnyvale, California, 2013

- Tested and identified errors in place-and-route software tool

TEACHING EXPERIENCE

First Year Grad Students Projects
Graduate teaching assistant
ELEC 599, Rice University
Spring 2020

Applied Machine Learning and Data Science Projects
Graduate Fellow
DSCI 435, Rice University
Spring 2020

PROFESSIONAL ACTIVITIES

University Service
President, Rice Electrical & Computer Engr. Graduate Student Association, 2020—2021
Graduate Student Chair, Rice Engr. Research Experience for Undergraduates (REU), 2021
Social Chair, Rice Electrical and Computer Engr. Graduate Student Association, 2019—2020
Secretary, Rice Electrical and Computer Engr. Graduate Student Association, 2016—2017
Sophomore representative, Santa Clara University IEEE, 2012—2013

Academic Service
Co-organizer, CVPR UG2+ Challenge Workshop, 2020

Reviewer
IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
International Conference on Computer Vision (ICCV)
Indian Conference on Computer Vision, Graphics, and Image Processing (ICVGIP)
Advances in Modeling and Learning Interactions (NeurIPS Workshop)
Neural Information Processing Systems (NeurIPS)

JOURNAL PUBLICATIONS

J. Tan, V. Boominathan, R. G. Baraniuk, and A. Veeraraghavan, “EDoF-ToF: extended depth of field time-of-flight imaging,” in *Optics Express*, vol. 29, no. 23, pp.38540-38556, Nov 2021.

J. Tan, L. Niu, J. Adams, V. Boominathan, J. T. Robinson, R. G. Baraniuk, and A. Veeraraghavan, "Face detection and verification using lensless cameras," in *IEEE Transactions on Computational Imaging*, vol. 5, no. 2, pp. 180-194, June 2019.

P. Wilhite, A. A. Vyas, J. Tan, **J. Tan**, T. Yamada, P. Wang, J. Park, and C. Y. Yang, "Metal-nanocarbon contacts", in *Semicond. Sci. Technol.,* vol. 29, no. 5, p. 054006, 2014.

CONFERENCE PAPERS

V. Saragadam, **J. Tan**, G. Balakrishnan, R.G. Baraniuk, A. Veeraraghavan, "MINER: Multiscale Implicit Neural Representations," in *European Conf. Comput. Vision*, Oct. 2022

S. Alemohammad, H. Babaei, R. Balestriero, M. Y. Chung, A. I. Humayun, D. LeJeune, N. Liu, L. Luzi, **J. Tan**, Z. Wang, R. Baraniuk, "Wearing a MASK: Compressed Representations of Variable-Length Sequences Using Recurrent Neural Tangent Kernels," in *IEEE Conf. Acoust. Speech, Signal Process., Jun. 2021.*

J. Tan, S. Khan, V. Boominathan, J. Byrne, R. Baraniuk, K. Mitra, and A. Veeraraghavan, "CAnOPIC: pre-digital privacy-enhancing encodings for computer vision," in *IEEE Int. Conf. Multimedia & Expo*, Jul. 2020

S. Khan, A. V. R, V. Boominathan, **J. Tan**, A. Veeraraghavan, and K. Mitra, "Towards photorealistic reconstruction of highly multiplexed lensless images," in *IEEE Int. Conf. Comput. Vision,* Oct. 2019

J. Tan and C. S. Burrus, "Near-linear-phase IIR filters using Gauss-Newton optimization," in *IEEE Int. Midwest Symp. Circuits Syst.,* Aug. 2019

J. Tan, V. Boominathan, A. Veeraraghavan, and R. G. Baraniuk, "Flat focus: depth of field analysis for the FlatCam lensless imaging system," in *IEEE Conf. Acoust. Speech, Signal Process.,* Mar. 2017, pp. 6473—6477

J. Tan and S. G. M. Koo, "A survey of technologies in internet of things," in *IEEE Int. Conf. Distrib. Comput. Sensor Syst.,* May 2014, pp.269—274

PREPRINTS

J. Tan, D. LeJeune, B. Mason, H. Javadi, R.G. Baraniuk, "Benign Overparameterization in Membership Inference with Early Stopping," arXiv:2205.14055, May 2022

J. Tan, B. Mason, H. Javadi, R.G. Baraniuk, "Parameters or Privacy: A Provable Tradeoff Between Overparameterization and Membership Inference," arXiv:2202.01243, Feb. 2022

PRESENTATIONS

"CAnOPIC: pre-digital privacy-enhancing encodings for computer vision," *IEEE International Conference on Multimedia & Expo*, Virtual, July 2020.

"FlatCam: Thin Lensless Cameras Through Signal Processing," *IEEE International Conference on Acoustics, Speech, and Signal Processing*, New Orleans, Louisiana, March 2017.

"A Survey of Technologies in Internet of Things," *IEEE International Conference on Distributed Computing in Sensor Systems*, Marina Del Ray, California, May 2014.

OTHERS

Programming experience:

Languages: (from most experience to least) Python, Matlab, SQL, C++, C

Deep learning frameworks: (from most experience to least) Pytorch, MatConvNet